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Ser 545 Gly	530 Ala Arg	Thr Arg Asp	Arg Ile	Ser Gly 565	Ser 550 Ser	535 Arg Glu	Thr Thr	Ser Glu	Leu Phe 570	Phe 555 Ala	540 Ser Asp	Phe Asp	Lys Glu	Gly His 575	Arg 560 Ser
Ser 545 Gly Ile	530 Ala Arg Phe	Thr Arg Asp Gly	Arg Ile Asp 580	Ser Gly 565 Asn	Ser 550 Ser Glu	535 Arg Glu Ser	Thr Thr Arg	Ser Glu Arg 585	Leu Phe 570 Gly	Phe 555 Ala Ser	540 Ser Asp Leu	Phe Asp Phe	Lys Glu Val 590	Gly His 575 Pro	Arg 560 Ser His
Ser 545 Gly Ile Arg	530 Ala Arg Phe Pro	Thr Arg Asp Gly Gln 595	Arg Ile Asp 580 Glu	Ser Gly 565 Asn Arg	Ser 550 Ser Glu Arg	535 Arg Glu Ser Ser	Thr Thr Arg Ser 600	Ser Glu Arg 585 Asn	Leu Phe 570 Gly Ile	Phe 555 Ala Ser	540 Ser Asp Leu Gln	Phe Asp Phe Ala 605	Lys Glu Val 590 Ser	Gly His 575 Pro Arg	Arg 560 Ser His Ser
Ser 545 Gly Ile Arg Pro	530 Ala Arg Phe Pro 610	Thr Arg Asp Gly Gln 595 Met	Arg Ile Asp 580 Glu Leu	Ser Gly 565 Asn Arg	Ser 550 Ser Glu Arg Val	535 Arg Glu Ser Ser Asn 615	Thr Thr Arg Ser 600 Gly	Ser Glu Arg 585 Asn Lys	Leu Phe 570 Gly Ile Met	Phe 555 Ala Ser Ser	540 Ser Asp Leu Gln Ser 620	Phe Asp Phe Ala 605 Ala	Lys Glu Val 590 Ser Val	Gly His 575 Pro Arg Asp	Arg 560 Ser His Ser Cys
Ser 545 Gly Ile Arg Pro Asn 625	Arg Phe Pro 610 Gly	Thr Arg Asp Gly Gln 595 Met Val	Arg Ile Asp 580 Glu Leu Val	Ser Gly 565 Asn Arg Pro	Ser 550 Ser Glu Arg Val Leu 630	Ser Ser Asn 615 Val	Thr Thr Arg Ser 600 Gly Asp	Ser Glu Arg 585 Asn Lys Gly	Leu Phe 570 Gly Ile Met	Phe 555 Ala Ser Ser His Ser 635	Ser Asp Leu Gln Ser 620 Ala	Phe Asp Phe Ala 605 Ala Leu	Lys Glu Val 590 Ser Val Met	Gly His 575 Pro Arg Asp Leu	Arg 560 Ser His Ser Cys Pro 640
Ser 545 Gly Ile Arg Pro Asn 625 Asn	Arg Phe Pro Pro 610 Gly Gly	Thr Arg Asp Gly Gln 595 Met Val	Arg Ile Asp 580 Glu Leu Val Leu	Ser Gly 565 Asn Arg Pro Ser Leu 645	Ser 550 Ser Glu Arg Val Leu 630 Pro	535 Arg Glu Ser Ser Asn 615 Val	Thr Thr Arg Ser 600 Gly Asp	Ser Glu Arg 585 Asn Lys Gly Thr	Leu Phe 570 Gly Ile Met Arg Thr 650	Phe 555 Ala Ser Ser His Ser 635 Asn	Ser Asp Leu Gln Ser 620 Ala Gln	Phe Asp Phe Ala 605 Ala Leu Ile	Lys Glu Val 590 Ser Val Met	Gly His 575 Pro Arg Asp Leu Lys 655	Arg 560 Ser His Ser Cys Pro 640 Lys
Ser 545 Gly Ile Arg Pro Asn 625 Asn	Arg Phe Pro 610 Gly Gly Arg	Thr Arg Asp Gly Gln 595 Met Val Gln Cys	Arg Ile Asp 580 Glu Leu Val Leu Ser 660	Ser Gly 565 Asn Arg Pro Ser Leu 645 Ser	Ser 550 Ser Glu Arg Val Leu 630 Pro	535 Arg Glu Ser Ser Asn 615 Val Glu Leu	Thr Thr Arg Ser 600 Gly Asp Gly Leu	Ser Glu Arg 585 Asn Lys Gly Thr Ser 665	Leu Phe 570 Gly Ile Met Arg Thr 650 Glu	Phe 555 Ala Ser Ser His Ser 635 Asn	540 Ser Asp Leu Gln Ser 620 Ala Gln Met	Phe Asp Phe Ala 605 Ala Leu Ile Leu	Lys Glu Val 590 Ser Val Met His Asn 670	Gly His 575 Pro Arg Asp Leu Lys 655 Asp	Arg 560 Ser His Ser Cys Pro 640 Lys
Ser 545 Gly Ile Arg Pro Asn 625 Asn Arg	Arg Phe Pro 610 Gly Gly Arg Leu	Thr Arg Asp Gly Gln 595 Met Val Gln Cys Arg 675	Arg Ile Asp 580 Glu Leu Val Leu Ser 660 Gln	Ser Gly 565 Asn Arg Pro Ser Leu 645 Ser Arg	Ser 550 Ser Glu Arg Val Leu 630 Pro Tyr	535 Arg Glu Ser Ser Asn 615 Val Glu Leu Met	Thr Thr Arg Ser 600 Gly Asp Gly Leu Ser 680	Ser Glu Arg 585 Asn Lys Gly Thr Ser 665 Arg	Leu Phe 570 Gly Ile Met Arg Thr 650 Glu Ala	Phe 555 Ala Ser Ser His Ser 635 Asn Asp	540 Ser Asp Leu Gln Ser 620 Ala Gln Met	Phe Asp Phe Ala 605 Ala Leu Ile Leu Leu 685	Lys Glu Val 590 Ser Val Met His Asn 670 Thr	Gly His 575 Pro Arg Asp Leu Lys 655 Asp	Arg 560 Ser His Ser Cys Pro 640 Lys Pro
Ser 545 Gly Ile Arg Pro Asn 625 Asn Arg Asn	Arg Phe Pro 610 Gly Gly Arg Leu Glu 690	Thr Arg Asp Gly Gln 595 Met Val Gln Cys Arg 675 Glu	Arg Ile Asp 580 Glu Leu Val Leu Ser 660 Gln Leu	Ser Gly 565 Asn Arg Pro Ser Leu 645 Ser Arg	Ser 550 Ser Glu Arg Val Leu 630 Pro Tyr Ala Glu	535 Arg Glu Ser Ser Asn 615 Val Glu Leu Met Ser 695	Thr Thr Arg Ser 600 Gly Asp Gly Leu Ser 680 Arg	Ser Glu Arg 585 Asn Lys Gly Thr Ser 665 Arg	Leu Phe 570 Gly Ile Met Arg Thr 650 Glu Ala Lys	Phe 555 Ala Ser Ser His Ser 635 Asn Asp Ser Cys	Ser Asp Leu Gln Ser 620 Ala Gln Met Ile Pro 700	Phe Asp Phe Ala 605 Ala Leu Ile Leu 685 Pro	Lys Glu Val 590 Ser Val Met His Asn 670 Thr	Gly His 575 Pro Arg Asp Leu Lys 655 Asp Asn Trp	Arg 560 Ser His Ser Cys Pro 640 Lys Pro Thr
Ser 545 Gly Ile Arg Pro Asn 625 Asn Arg Val	Arg Phe Pro 610 Gly Gly Arg Leu Glu 690 Phe	Thr Arg Asp Gly Sln 595 Met Val Gln Cys Arg 675 Glu Ala	Arg Ile Asp 580 Glu Leu Val Leu Ser 660 Gln Leu His	Ser Gly 565 Asn Arg Pro Ser Leu 645 Ser Arg Glu Lys	Ser 550 Ser Glu Arg Val Leu 630 Pro Tyr Ala Glu Phe 710	535 Arg Glu Ser Ser Asn 615 Val Glu Leu Met Ser 695 Leu	Thr Thr Arg Ser 600 Gly Asp Gly Leu Ser 680 Arg	Ser Glu Arg 585 Asn Lys Gly Thr Ser 665 Arg Gln Trp	Leu Phe 570 Gly Ile Met Arg Thr 650 Glu Ala Lys Asn	Phe 555 Ala Ser Ser His Ser 635 Asn Asp Ser Cys 715	Ser Asp Leu Gln Ser 620 Ala Gln Met Ile Pro 700 Ser	Phe Asp Phe Ala 605 Ala Leu Ile Leu Leu Pro	Lys Glu Val 590 Ser Val Met His Asn 670 Thr	Gly His 575 Pro Arg Asp Leu Lys 655 Asp Asn Trp	Arg 560 Ser His Ser Cys Pro 640 Lys Pro Thr Tyr

Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe Met Ala Met 740 745 Glu His His Pro Met Thr Glu Glu Phe Lys Asn Val Leu Ala Ile Gly 760 Asn Leu Val Phe Thr Gly Ile Phe Ala Ala Glu Met Val Leu Lys Leu 775 780 Ile Ala Met Asp Pro Tyr Glu Tyr Phe Gln Val Gly Trp Asn Ile Phe 790 795 Asp Ser Leu Ile Val Thr Leu Ser Leu Val Glu Leu Phe Leu Ala Asp 805 810 Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe 820 825 830 Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile Lys Ile Ile 835 840 Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile 855 860 Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Ser 870 875 Tyr Lys Glu Cys Val Cys Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg 885 890 Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val Phe Arg Val 900 905 910 Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ala 915 920 925 Gly Gln Ala Met Cys Leu Ile Val Tyr Met Met Val Met Val Ile Gly 935 Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe 950 955 Ser Ser Asp Asn Leu Thr Ala Ile Glu Glu Asp Pro Asp Ala Asn Asn 965 970 Leu Gln Ile Ala Val Thr Arg Ile Lys Lys Gly Ile Asn Tyr Val Lys 980 985 990 Gln Thr Leu Arg Glu Phe Ile Leu Lys Ala Phe Ser Lys Lys Pro Lys 1000 1005 Ile Ser Arg Glu Ile Arg Gln Ala Glu Asp Leu Asn Thr Lys Lys Glu 1015 1020 Asn Tyr Ile Ser Asn His Thr Leu Ala Glu Met Ser Lys Gly His Asn 1030 . 1035 Phe Leu Lys Glu Lys Asp Lys Ile Ser Gly Phe Gly Ser Ser Val Asp 1045 1050 1055 Lys His Leu Met Glu Asp Ser Asp Gly Gln Ser Phe Ile His Asn Pro 1060 1065 1070 Ser Leu Thr Val Thr Val Pro Ile Ala Pro Gly Glu Ser Asp Leu Glu 1080 1085 1075 Asn Met Asn Ala Glu Glu Leu Ser Ser Asp Ser Asp Ser Glu Tyr Ser 1095 1100 Lys Val Arg Leu Asn Arg Ser Ser Ser Ser Glu Cys Ser Thr Val Asp 1105 1110 1115 Asn Pro Leu Pro Gly Glu Gly Glu Ala Glu Ala Glu Pro Met Asn 1125 1130 1135 Ser Asp Glu Pro Glu Ala Cys Phe Thr Asp Gly Cys Val Arg Arg Phe 1140 1145 1150 Ser Cys Cys Gln Val Asn Ile Glu Ser Gly Lys Gly Lys Ile Trp Trp 1155 1160 1165 Asn Ile Arg Lys Thr Cys Tyr Lys Ile Val Glu His Ser Trp Phe Glu 1175 1180 Ser Phe Ile Val Leu Met Ile Leu Leu Ser Ser Gly Ala Leu Ala Phe 1190 1195 1200 Glu Asp Ile Tyr Ile Glu Arg Lys Lys Thr Ile Lys Ile Ile Leu Glu 1205 1210 1215

Tyr Ala Asp Lys Ile Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu 1220 1225 1230 Lys Trp Ile Ala Tyr Gly Tyr Lys Thr Tyr Phe Thr Asn Ala Trp Cys 1235 1240 1245 Trp Leu Asp Phe Leu Ile Val Asp Val Ser Leu Val Thr Leu Val Ala 1255 1260 Asn Thr Leu Gly Tyr Ser Asp Leu Gly Pro Ile Lys Ser Leu Arg Thr 1265 1270 1275 1280 Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met 1285 1290 1295 Arg Val Val Val Asn Ala Leu Ile Gly Ala Ile Pro Ser Ile Met Asn 1300 1305 1310 Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly 1320 1325 Val Asn Leu Phe Ala Gly Lys Phe Tyr Glu Cys Ile Asn Thr Thr Asp 1330 1335 1340 Gly Ser Arg Phe Pro Ala Ser Gln Val Pro Asn Arg Ser Glu Cys Phe 1345 1350 1355 Ala Leu Met Asn Val Ser Gln Asn Val Arg Trp Lys Asn Leu Lys Val 1365 1370 1375 Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu Ser Leu Leu Gln Val Ala 1380 1385 1390 Thr Phe Lys Gly Trp Thr Ile Ile Met Tyr Ala Ala Val Asp Ser Val 1395 1400 1405 Asn Val Asp Lys Gln Pro Lys Tyr Glu Tyr Ser Leu Tyr Met Tyr Ile 1410 1415 1420 1415 1420 Tyr Phe Val Val Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu 1430 1435 Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Leu 1455 1445 1450 Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn 1460 1465 1470 Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg 1475 1480 1485 Pro Gly Asn Lys Ile Gln Gly Cys Ile Phe Asp Leu Val Thr Asn Gln 1490 1495 1500 Ala Phe Asp Ile Ser Ile Met Val Leu Ile Cys Leu Asn Met Val Thr 1505 1510 1515 1520 Met Met Val Glu Lys Glu Gly Gln Ser Gln His Met Thr Glu Val Leu 1525 1530 1535 Tyr Trp Ile Asn Val Val Phe Ile Ile Leu Phe Thr Gly Glu Cys Val 1540 1545 1550 Leu Lys Leu Ile Ser Leu Arg His Tyr Tyr Phe Thr Val Gly Trp Asn 1555 1560 1565 1555 1560 Ile Phe Asp Phe Val Val Val Ile Ile Ser Ile Val Gly Met Phe Leu 1575 1580 Ala Asp Leu Ile Glu Thr Tyr Phe Val Ser Pro Thr Leu Phe Arg Val 1585 1590 1595 1600 Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala 1615 1605 1610 Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala 1620 1625 1630 Leu Phe Asn Ile Gly Leu Leu Phe Leu Val Met Phe Ile Tyr Ala 1635 1640 1645 Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile 1650 1655 <sup>-</sup> 1660 Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu 1665 1670 1675 Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile 1685 1690 1695

Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly 1700 1705 1710 Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr 1715 1720 1725 Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr 1735 1740 Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr 1745 1750 1755 Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu 1765 1770 1775 Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser 1780 1785 1790 Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn 1795 1800 1805 Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg 1810 1815 1820 Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly 1830 1835 1825 Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe 1845 1850 1855 Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr 1870 1860 1865 Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala 1875 1880 1885 Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile 1890 1895 1900 Tyr Ile Lys Asp Gly Asp Arg Asp Asp Leu Leu Asn Lys Lys Asp 1905 1910 1915 Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp 1925 1930 1935 Ala Thr Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys 1940 1945 1950 Pro Asp Lys Glu Lys Tyr Glu Gln Asp Arg Thr Glu Lys Glu Asp Lys 1965 1955 1960 Gly Lys Asp Ser Lys Glu Ser Lys Lys 1975 1970

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Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Ile Phe Met Thr
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Gly Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile Leu Ala Arg Gly Phe
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                                              175
Cys Val Gly Glu Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp Leu Asp
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Phe Val Val Ile Val Phe Ala Tyr Leu Thr Glu Phe Val Asn Leu Gly
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                                      205
Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu Lys Thr
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                                   220
Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu Ile Gln
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                               235
Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe Cys Leu
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Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn Leu Lys
        260
                       265
His Lys Cys Phe Arg Asn Ser Leu Glu Asn Asn Glu Thr Leu Glu Ser
      275
                      280
                              285
Ile Met Asn Thr Leu Glu Ser Glu Glu Asp Phe Arg Lys Tyr Phe Tyr
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                                    300
Tyr Leu Glu Gly Ser Lys Asp Ala Leu Leu Cys Gly Phe Ser Thr Asp
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                       315
Ser Gly Gln Cys Pro Glu Gly Tyr Thr Cys Val Lys Ile Gly Arg Asn
            325
                              330
Pro Asp Tyr Gly Tyr Thr Ser Phe Asp Thr Phe Ser Trp Ala Phe Leu
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                        345
Ala Leu Phe Arg Leu Met Thr Gln Asp Tyr Trp Glu Asn Leu Tyr Gln
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Gln Thr Leu Arg Ala Ala Gly Lys Thr Tyr Met Ile Phe Phe Val Val
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                   375
                               380
Val Ile Phe Leu Gly Ser Phe Tyr Leu Ile Asn Leu Ile Leu Ala Val
                              395
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Val Ala Met Ala Tyr Glu Glu Gln Asn Gln Ala Asn Ile Glu Glu Ala
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Lys Gln Lys Glu Leu Glu Phe Gln Gln Met Leu Asp Arg Leu Lys Lys
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                         425
Glu Gln Glu Glu Ala Glu Ala Ile Ala Ala Ala Ala Glu Tyr Thr
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Ser Ile Arg Arg Ser Arg Ile Met Gly Leu Ser Glu Ser Ser Ser Glu
 450 455
                              460
Thr Ser Lys Leu Ser Ser Lys Ser Ala Lys Glu Arg Arg Asn Arg Arg
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Lys Lys Lys Asn Gln Lys Lys Leu Ser Ser Gly Glu Glu Lys Gly Asp
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Ala Glu Lys Leu Ser Lys Ser Glu Ser Glu Asp Ser Ile Arg Lys
                          505
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Ser Phe His Leu Gly Val Glu Gly His Arg Arg Ala His Glu Lys Arg
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                                       525
Leu Ser Thr Pro Asn Gln Ser Pro Leu Ser Ile Arg Gly Ser Leu Phe
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Ser Ala Arg Arg Ser Ser Arg Thr Ser Leu Phe Ser Phe Lys Gly Arg
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        550
Gly Arg Asp Ile Gly Ser Glu Thr Glu Phe Ala Asp Asp Glu His Ser
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Ile Phe Gly Asp Asn Glu Ser Arg Arg Gly Ser Leu Phe Val Pro His
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Arg Pro Gln Glu Arg Arg Ser Ser Asn Ile Ser Gln Ala Ser Arg Ser
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Pro Pro Met Leu Pro Val Asn Gly Lys Met His Ser Ala Val Asp Cys
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 Asn Gly Val Val Ser Leu Val Asp Gly Arg Ser Ala Leu Met Leu Pro
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 Tyr Gly Gln Leu Leu Pro Glu Gly Thr Thr Asn Gln Ile His Lys Lys
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                                 650
                                                    655 - -
 Arg Arg Cys Ser Ser Tyr Leu Leu Ser Glu Asp Met Leu Asn Asp Pro
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                             665
 Asn Leu Arg Gln Arg Ala Met Ser Arg Ala Ser Ile Leu Thr Asn Thr
        675
                    680
 Val Glu Glu Leu Glu Glu Ser Arg Gln Lys Cys Pro Pro Trp Trp Tyr
             695
                                      700
Arg Phe Ala His Lys Phe Leu Ile Trp Asn Cys Ser Pro Tyr Trp Ile
        • 710
                                    715
Lys Phe Lys Lys Cys Ile Tyr Phe Ile Val Met Asp Pro Phe Val Asp
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                                730
Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe Met Ala Met
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                             745
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Glu His His Pro Met Thr Glu Glu Phe Lys Asn Val Leu Ala Ile Gly
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Asn Leu Val Phe Thr Gly Ile Phe Ala Ala Glu Met Val Leu Lys Leu
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Ile Ala Met Asp Pro Tyr Glu Tyr Phe Gln Val Gly Trp Asn Ile Phe
               790
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Asp Ser Leu Ile Val Thr Leu Ser Leu Val Glu Leu Phe Leu Ala Asp
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Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe
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                                               830
Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile Lys Ile Ile
                      840
      835
                                  845
Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile
                     855
                                       860
Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Ser
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                                    875
Tyr Lys Glu Cys Val Cys Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg
             885
                                890
Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val Phe Arg Val
          900
                             905
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Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ala
                         920
                                   925
Gly Gln Ala Met Cys Leu Ile Val Tyr Met Met Val Met Val Ile Gly
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Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Ser Ser Phe
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Ser Ser Asp Asn Leu Thr Ala Ile Glu Glu Asp Pro Asp Ala Asn Asn
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Leu Gln Ile Ala Val Thr Arg Ile Lys Lys Gly Ile Asn Tyr Val Lys
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Gln Thr Leu Arg Glu Phe Ile Leu Lys Ala Phe Ser Lys Lys Pro Lys
                         1000
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Ile Ser Arg Glu Ile Arg Gln Ala Glu Asp Leu Asn Thr Lys Lys Glu
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                                        1020
Asn Tyr Ile Ser Asn His Thr Leu Ala Glu Met Ser Lys Gly His Asn
                 1030
                                   1035
Phe Leu Lys Glu Lys Asp Lys Ile Ser Gly Phe Gly Ser Ser Val Asp
             1045
                               1050
Lys His Leu Met Glu Asp Ser Asp Gly Gln Ser Phe Ile His Asn Pro
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                                              1070
Ser Leu Thr Val Thr Val Pro Ile Ala Pro Gly Glu Ser Asp Leu Glu
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Asn Met Asn Ala Glu Glu Leu Ser Ser Asp Ser Asp Ser Glu Tyr Ser 1095 1100 Lys Val Arg Leu Asn Arg Ser Ser Ser Glu Cys Ser Thr Val Asp 1105 1110 1115 Asn Pro Leu Pro Gly Glu Gly Glu Glu Ala Glu Ala Glu Pro Met Asn 1125 1130 1135 Ser Asp Glu Pro Glu Ala Cys Phe Thr Asp Gly Cys Val Arg Arg Phe 1140 1145 1150 Ser Cys Cys Gln Val Asn Ile Glu Ser Gly Lys Gly Lys Ile Trp Trp 1155 1160 1165 Asn Ile Arg Lys Thr Cys Tyr Lys Ile Val Glu His Ser Trp Phe Glu 1175 1180 1170 Ser Phe Ile Val Leu Met Ile Leu Leu Ser Ser Gly Ala Leu Ala Phe 1190 1195 Glu Asp Ile Tyr Ile Glu Arg Lys Lys Thr Ile Lys Ile Ile Leu Glu 1205 1210 1215 Tyr Ala Asp Lys Ile Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu 1220 1225 1230 Lys Trp Ile Ala Tyr Gly Tyr Lys Thr Tyr Phe Thr Asn Ala Trp Cys 1235 1240 1245 Trp Leu Asp Phe Leu Ile Val Asp Val Ser Leu Val Thr Leu Val Ala 1255 1260 Asn Thr Leu Gly Tyr Ser Asp Leu Gly Pro Ile Lys Ser Leu Arg Thr 1265 1270 1275 1280 Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met 1285 1290 1295 Arg Val Val Val Asn Ala Leu Ile Gly Ala Ile Pro Ser Ile Met Asn 1300 1305 1310 Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly 1315 1320 1325 Val Asn Leu Phe Ala Gly Lys Phe Tyr Glu Cys Ile Asn Thr Thr Asp 1340 · 1330 1335 Gly Ser Arg Phe Pro Ala Ser Gln Val Pro Asn Arg Ser Glu Cys Phe 1350 1355 1360 Ala Leu Met Asn Val Ser Gln Asn Val Arg Trp Lys Asn Leu Lys Val 1365 1370 1375 Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu Ser Leu Leu Gln Val Ala 1380 1385 Thr Phe Lys Gly Trp Thr Ile Ile Met Tyr Ala Ala Val Asp Ser Val 1395 1400 1405 Asn Val Asp Lys Gln Pro Lys Tyr Glu Tyr Ser Leu Tyr Met Tyr Ile 1410 1415 1420 Tyr Phe Val Val Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu 1425 1430 1435 1440 Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Leu 1445 1450 1455 Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn 1460 1465 1470 Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg 1485 1475 1480 Pro Gly Asn Lys Ile Gln Gly Cys Ile Phe Asp Leu Val Thr Asn Gln 1490 1495 1500 Ala Phe Asp Ile Ser Ile Met Val Leu Ile Cys Leu Asn Met Val Thr 1505 1510 1515 1520 Met Met Val Glu Lys Glu Gly Gln Ser Gln His Met Thr Glu.Val Leu 1525 1530 Tyr Trp Ile Asn Val Val Phe Ile Ile Leu Phe Thr Gly Glu Cys Val 1545 1550 Leu Lys Leu Ile Ser Leu Arg His Tyr Tyr Phe Thr Val Gly Trp Asn 1560

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Ile Phe Asp Phe Val Val Val Ile Ile Ser Ile Val Gly Met Phe Leu
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Ala Asp Leu Ile Glu Thr Tyr Phe Val Ser Pro Thr Leu Phe Arg Val
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                   1595 1600
Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala
           1605 1610
                                1615
Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala
       1620 1625 1630
Leu Phe Asn Ile Gly Leu Leu Phe Leu Val Met Phe Ile Tyr Ala
    1635 1640 1645
Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile
 1650 1655
                        1660
Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu
1665 1670
                     1675
Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile
        1685 1690
Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly
       1700
                     1705
                                    1710
Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr
    1715 1720 1725
Phe Val Ser Tyr Ile Ile Ser Phe Leu Val Val Asn Met Tyr
1730 1735 1740
Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr
1745 1750 1755 1760
Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu
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                                  1775
Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser
       1780 1785
                                     1790 ...
Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn
   1795 1800
                                  1805
Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg
 1810 1815 1820
Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly
       1830 1835
                                         1840
Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe
         1845 1850 1855
Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr
        1860 1865
                                    1870
Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala
 1875 1880 1885
Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile
 1890 1895 1900
Tyr Ile Lys Asp Gly Asp Arg Asp Asp Asp Leu Leu Asn Lys Lys Asp 1905 1910 1915 1920
Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp
          1925 1930 1935
Ala Thr Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys
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85 90 95 Ile Phe Arg Phe Asn Ala Thr Pro Ala Leu Tyr Met Leu Ser Pro Phe Ser Pro Leu Arg Arg Ile Ser Ile Lys Ile Leu Val His Ser Leu Phe Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Ile Phe Met Thr Met Asn Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile Leu Ala Arg Gly Phe 165 170 Cys Val Gly Glu Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp Leu Asp 180 185 190 Phe Val Val Ile Val Phe Ala Tyr Leu Thr Glu Phe Val Asn Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn Leu Lys His Lys Cys Phe Arg Asn Ser Leu Glu Asn Asn Glu Thr Leu Glu Ser 275 280 Ile Met Asn Thr Leu Glu Ser Glu Glu Asp Phe Arg Lys Tyr Phe Tyr Tyr Leu Glu Gly Ser Lys Asp Ala Leu Leu Cys Gly Phe Ser Thr Asp . 315 Ser Gly Gln Cys Pro Glu Gly Tyr Thr Cys Val Lys Ile Gly Arg Asn Pro Asp Tyr Gly Tyr Thr Ser Phe Asp Thr Phe Ser Trp Ala Phe Leu 340 345 Ala Leu Phe Arg Leu Met Thr Gln Asp Tyr Trp Glu Asn Leu Tyr Gln Gln Thr Leu Arg Ala Ala Gly Lys Thr Tyr Met Ile Phe Phe Val Val Val Ile Phe Leu Gly Ser Phe Tyr Leu Ile Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Glu Gln Asn Gln Ala Asn Ile Glu Glu Ala Lys Gln Lys Glu Leu Glu Phe Gln Gln Met Leu Asp Arg Leu Lys Lys Glu Gln Glu Glu Ala Glu Ala Ile Ala Ala Ala Ala Ala Glu Tyr Thr Ser Ile Arg Arg Ser Arg Ile Met Gly Leu Ser Glu Ser Ser Ser Glu Thr Ser Lys Leu Ser Ser Lys Ser Ala Lys Glu Arg Arg Asn Arg Arg 

Lys	Lys	Lys	Asn	Gln 485	Lys	Lys	Leu	Ser	Ser 490	Gly	Glu	Glu	Lys	Gly 495	Asp
Ala	Glu	Lys	Leu 500	Ser	Lys	Ser	Glu	Ser 505	Glu	Asp	Ser	Ile	Arg 510	Arg	Lys
Ser	Phe	His 515	Leu	Gly	Val	Glu	Gly 520	His	Arg	Arg	Ala	His 525		Lys	Arg
Leu	Ser 530		Pro	Asn	Gln	Ser 535		Leu	Sér	Ile	Arg 540		Ser	Leu	Phe
Ser 545		Arg	Arg	Ser	Ser 550		Thr	Ser	Leu	Phe 555	-	Phe	Lуs	Gly	Arg 560
	Arg	Asp	Ile	Gly 565		Glu	Thr	Glu	Phe 570		Asp	Asp	Glu	His 575	
Ile	Phe	Gly	Asp 580		Glu	Ser	Arg	Arg 585	-	Ser	Leu	Phe	Val 590	Pro	His
Arg	Pro	Gln 595		Arg	Arg	Ser	Ser 600		Ile	Ser	Gln	Ala 605		Arg	Ser
.Pro	Pro 610		Leu	Pro	Val	Asn 615		Lys	Met	His	Ser 620		۷al	Asp	Cys
Asn 625		Val	Val	Ser	Leu 630		Asp	Gly	Arg	Ser 635		Leu	Met	Leu	Pro 640
	Gly	Gln	Leu	Leu 645		Glu	Gly	Thr	Thr 650		Gln	Ile	His	Arg 655	
Arg	Arg	Суѕ	Ser 660		Tyr	Leu	Leu	Ser 665		Asp	Met	Leu	Asn 670	Asp	Pro
Asn	Leu	Arg 675	Gln	Arg	Ala	Met	Ser 680		Ala	Ser	Ile	Leu 685		Asn	Thr
Val	Glu 690	Glu	Leu	Glu	Glu	Ser 695		Gln	Lys	Cys	Pro 700		Trp	Trp	Tyr
Arg 705	Phe	Ala	His	Lys	Phe 710	Leu	Ile	Trp	Asn	Cys 715	Ser	Pro	Tyr	Trp	Ile 720
Lys	Phe	Lys	Lys	Cys 725	Ile	Tyr	Phe	Ile	Val 730	Met	Asp	Pro	Phe	Val 735	Asp
Leu	Ala	Ile	Thr 740	Ile	Суѕ	Ile	Val	Leu 745	Asn	Thr	Leu	Phe	Met 750	Ala	Met
Glu	His	His 755	Pro	Met	Thr	Glu	Glu 760	Phe	Lys	Asn	Val	Leu 765	Ala	Ile	Gly
Asn	Leu 770	Val	Phe	Thr	Gly	Ile 775	Phe	Ala	Ala	Glu	Met 780	Val	Leu	Lys	Leu
Ile 785	Ala	Met	qeA	Pro	Tyr 790	Glu	Tyr	Phe	Gln	Val 795	Gly	Trp	Asn	Ile	Phe 800
Asp	Ser	Leu	Ile	Val 805	Thr	Leu	Ser	Leu	Val 810	Glu	Leu	Phe	Leu	Ala 815	Asp
Val	Glu	Gly	Leu 820	Ser	Val	Leu	Arg	Ser 825	Phe	Arg	Leu	Leu	Arg 830	Val	Phe
		835	_		_		840					845	_	Ile	
	850					855					860			Ala	
865					870					875				Lys	880
Tyr	Lys	Glu	Cys	Val 885	Cys	Lys	Ile	Asn	Asp 890	Asp	Cys	Thr	Leu	Pro 895	Arg
_			900	_				905					910	Arg	
	-	915		_			920		_	_	-	925		Val	
Gly	Gln 930	Ala	Met	Cys	Leu	11e 935	Val	Tyr	Met	Met	Val 940	Met	Val	Ile	Gly
Asn 945	Leu	Val	Val	Leu	Asn 950	Leu	Phe	Leu	Ala	Leu 955	Leu	Leu	Ser	Ser	Phe 960

Ser Ser Asp Asn Leu Thr Ala Ile Glu Glu Asp Pro Asp Ala Asn Asn 965 970 . 975 Leu Gln Ile Ala Val Thr Arg Ile Lys Lys Gly Ile Asn Tyr Val Lys 980 985 990 Gln Thr Leu Arg Glu Phe Ile Leu Lys Ala Phe Ser Lys Lys Pro Lys 1005 995 1000 Ile Ser Arg Glu Ile Arg Gln Ala Glu Asp Leu Asn Thr Lys Lys Glu 1015 1020 Asn Tyr Ile Ser Asn His Thr Leu Ala Glu Met Ser Lys Gly His Asn 1025 1030 1035 Phe Leu Lys Glu Lys Asp Lys Ile Ser Gly Phe Gly Ser Ser Val Asp 1045 1050 1055 Lys His Leu Met Glu Asp Ser Asp Gly Gln Ser Phe Ile His Asn Pro 1060 1065 1070 Ser Leu Thr Val Thr Val Pro Ile Ala Pro Gly Glu Ser Asp Leu Glu 1075 1080 1085 Asn Met Asn Ala Glu Glu Leu Ser Ser Asp Ser Asp Ser Glu Tyr Ser 1090 1095 1100 Lys Val Arg Leu Asn Arg Ser Ser Ser Ser Glu Cys Ser Thr Val Asp 1105 1110 1115 Asn Pro Leu Pro Gly Glu Gly Glu Ala Glu Ala Glu Pro Met Asn 1125 1130 1135 Ser Asp Glu Pro Glu Ala Cys Phe Thr Asp Gly Cys Val Arg Arg Phe 1140 1145 1150Ser Cys Cys Gln Val Asn Ile Glu Ser Gly Lys Gly Lys Ile Trp Trp 1155 1160 1165 Asn Ile Arg Lys Thr Cys Tyr Lys Ile Val Glu His Ser Trp Phe Glu 1180 1170 1175 Ser Phe Ile Val Leu Met Ile Leu Leu Ser Ser Gly Ala Leu Ala Phe 1185 1190 1195 Glu Asp Ile Tyr Ile Glu Arg Lys Lys Thr Ile Lys Ile Ile Leu Glu 1205 1210 1215 Tyr Ala Asp Lys Ile Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu 1220 1225 1230 Lys Trp Ile Ala Tyr Gly Tyr Lys Thr Tyr Phe Thr Asn Ala Trp Cys 1235 1240 1245 Trp Leu Asp Phe Leu Ile Val Asp Val Ser Leu Val Thr Leu Val Ala 1250 1255 1260 Asn Thr Leu Gly Tyr Ser Asp Leu Gly Pro Ile Lys Ser Leu Arg Thr 1265 1270 1275 1280 Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met 1285 1290 1295 Arg Val Val Val Asn Ala Leu Ile Gly Ala Ile Pro Ser Ile Met Asn 1300 1305 1310 Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly 1315 1320 1325 Val Asn Leu Phe Ala Gly Lys Phe Tyr Glu Cys Ile Asn Thr Thr Asp 1330 1335 1340 Gly Ser Arg Phe Pro Ala Ser Gln Val Pro Asn Arg Ser Glu Cys Phe 1345 1350 1355 1360 Ala Leu Met Asn Val Ser Gln Asn Val Arg Trp Lys Asn Leu Lys Val 1365 1370 1375 Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu Ser Leu Leu Gln Val Ala 1380 1385 1390 Thr Phe Lys Gly Trp Thr Ile Ile Met Tyr Ala Ala Val Asp Ser Val 1400 1405 Asn Val Asp Lys Gln Pro Lys Tyr Glu Tyr Ser Leu Tyr Met Tyr Ile 1410 1415 1420 Tyr Phe Val Val Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu 1430 1435

Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Leu 1445 1450 1455 Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn 1460 1465 1470 Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg 1485 1475 1480 Pro Gly Asn Lys Ile Gln Gly Cys Ile Phe Asp Leu Val Thr Asn Gln 1495 1500 Ala Phe Asp Ile Ser Ile Met Val Leu Ile Cys Leu Asn Met Val Thr 1505 1510 1515 Met Met Val Glu Lys Glu Gly Gln Ser Gln His Met Thr Glu Val Leu 1525 1530 1535 Tyr Trp Ile Asn Val Val Phe Ile Ile Leu Phe Thr Gly Glu Cys Val 1540 1545 1550 Leu Lys Leu Ile Ser Leu Arg His Tyr Tyr Phe Thr Val Gly Trp Asn 1555 1560 1565 Ile Phe Asp Phe Val Val Val Ile Ile Ser Ile Val Gly Met Phe Leu 1570 1575 1580 Ala Asp Leu Ile Glu Thr Tyr Phe Val Ser Pro Thr Leu Phe Arg Val 1585 1590 1595 Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala 1605 1610 1615 Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala 1620 1625 1630 Leu Phe Asn Ile Gly Leu Leu Phe Leu Val Met Phe Ile Tyr Ala 1635 1640 1645 Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile 1650 1655 1660 Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu 1665 1670 1675 Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile 1685 1690 1695 Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly 1700 - 1705 1710 Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr 1715 1720 1725 Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr 1730 1735 1740 Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr 1745 1750 1755 1760 Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu 1765 1770 , 1775 Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser 1780 1785 1790 Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn 1800 1805 1795 Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg 1810 1815 1820 Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly 1825 1830 1835 Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe 1845 1850 1855 Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr 1860 1865 1870 Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala 1885 1875 1880 Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile 1890 1895 1900 Tyr Ile Lys Asp Gly Asp Arg Asp Asp Leu Leu Asn Lys Lys Asp 1915 1910

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Gln Thr Leu Arg Ala Ala Gly Lys Thr Tyr Met Ile Phe Phe Val Val
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Val Ile Phe Leu Gly Ser Phe Tyr Leu Ile Asn Leu Ile Leu Ala Val
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Val Ala Met Ala Tyr Glu Glu Gln Asn Gln Ala Asn Ile Glu Glu Ala
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                                 410
Lys Gln Lys Glu Leu Glu Phe Gln Gln Met Leu Asp Arg Leu Lys Lys
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                              425
                                                  430
Glu Gln Glu Glu Ala Glu Ala Ile Ala Ala Ala Ala Glu Tyr Thr
                           440
                                             445
Ser Ile Arg Arg Ser Arg Ile Met Gly Leu Ser Glu Ser Ser Ser Glu
                    · 455
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Thr Ser Lys Leu Ser Ser Lys Ser Ala Lys Glu Arg Arg Asn Arg Arg
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                                      475
Lys Lys Lys Asn Gln Lys Lys Leu Ser Ser Gly Glu Glu Lys Gly Asp
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Ala Glu Lys Leu Ser Lys Ser Glu Ser Glu Asp Ser Ile Arg Arg Lys
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Ser Phe His Leu Gly Val Glu Gly His Arg Arg Ala His Glu Lys Arg
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Leu Ser Thr Pro Asn Gln Ser Pro Leu Ser Ile Arg Gly Ser Leu Phe
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Ser Ala Arg Arg Ser Ser Arg Thr Ser Leu Phe Ser Phe Lys Gly Arg
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Gly Arg Asp Ile Gly Ser Glu Thr Glu Phe Ala Asp Asp Glu His Ser
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Ile Phe Gly Asp Asn Glu Ser Arg Arg Gly Ser Leu Phe Val Pro His
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Arg Pro Gln Glu Arg Arg Ser Ser Asn Ile Ser Gln Ala Ser Arg Ser
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Pro Pro Met Leu Pro Val Asn Gly Lys Met His Ser Ala Val Asp Cys
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Asn Gly Gln Leu Leu Pro Glu Gly Thr Thr Asn Gln Ile His Lys Lys
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Arg Arg Cys Ser Ser Tyr Leu Leu Ser Glu Asp Met Leu Asn Asp Pro
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Asn Leu Arg Gln Arg Ala Met Ser Arg Ala Ser Ile Leu Thr Asn Thr
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Val Glu Glu Leu Glu Glu Ser Arg Gln Lys Cys Pro Pro Trp Trp Tyr
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    690
                      695
Arg Phe Ala His Lys Phe Leu Ile Trp Asn Cys Ser Pro Tyr Trp Ile
                   710
                                      715
Lys Phe Lys Lys Cys Ile Tyr Phe Ile Val Met Asp Pro Phe Val Asp
                                   730
                                                      735
Leu Ala Val Thr Ile Cys Ile Val Leu Asn Thr Leu Phe Met Ala Met
            740
                               745
                                                  750
Glu His His Pro Met Thr Glu Glu Phe Lys Asn Val Leu Ala Ile Gly
  755
                         760
Asn Leu Val Phe Thr Gly Ile Phe Ala Ala Glu Met Val Leu Lys Leu
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                                           780
Ile Ala Met Asp Pro Tyr Glu Tyr Phe Gln Val Gly Trp Asn Ile Phe
                                       795
                   790
Asp Ser Leu Ile Val Thr Leu Ser Leu Val Glu Leu Phe Leu Ala Asp
                                   810
              805
Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe
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Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile Lys Ile Ile 835 840 845 Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile 855 860 Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Ser 870 875 Tyr Lys Glu Cys Val Cys Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg 890 885 Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val Phe Arg Val 900 905 910 Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ala 915 920 925 Gly Gln Ala Met Cys Leu Ile Val Tyr Met Met Val Met Val Ile Gly 935 940 Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe 950 955 Ser Ser Asp Asn Leu Thr Ala Ile Glu Glu Asp Pro Asp Ala Asn Asn 970 965 Leu Gln Ile Ala Val Thr Arg Ile Lys Lys Gly Ile Asn Tyr Val Lys 985 990 980 Gln Thr Leu Arg Glu Phe Ile Leu Lys Ala Phe Ser Lys Lys Pro Lys 1005 1000 995 Ile Ser Arg Glu Ile Arg Gln Ala Glu Asp Leu Asn Thr Lys Lys Glu 1015 1020 Asn Tyr Ile Ser Asn His Thr Leu Ala Glu Met Ser Lys Gly His Asn 1035 1030 Phe Leu Lys Glu Lys Asp Lys Ile Ser Gly Phe Gly Ser Ser Val Asp 1045 1050 1055^ Lys His Leu Met Glu Asp Ser Asp Gly Gln Ser Phe Ile His Asn Pro 1070 1060 1065 Ser Leu Thr Val Thr Val Pro Ile Ala Pro Gly Glu Ser Asp Leu Glu 1075 1080 1085 Asn Met Asn Ala Glu Glu Leu Ser Ser Asp Ser Asp Ser Glu Tyr Ser 1100 1090 1095 Lys Val Arg Leu Asn Arg Ser Ser Ser Ser Glu Cys Ser Thr Val Asp 1110 1115 Asn Pro Leu Pro Gly Glu Gly Glu Glu Ala Glu Ala Glu Pro Met Asn 1130 1135 1125 Ser Asp Glu Pro Glu Ala Cys Phe Thr Asp Gly Cys Val Arg Arg Phe 1145 1150 1140 Ser Cys Cys Gln Val Asn Ile Glu Ser Gly Lys Gly Lys Ile Trp Trp 1160 1165 1155 Asn Ile Arg Lys Thr Cys Tyr Lys Ile Val Glu His Ser Trp Phe Glu 1170 1175 1180 Ser Phe Ile Val Leu Met Ile Leu Leu Ser Ser Gly Ala Leu Ala Phe 1190 1195 Glu Asp Ile Tyr Ile Glu Arg Lys Lys Thr Ile Lys Ile Ile Leu Glu 1210 1215 1205 Tyr Ala Asp Lys Ile Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu 1225 1230 1220 Lys Trp Ile Ala Tyr Gly Tyr Lys Thr Tyr Phe Thr Asn Ala Trp Cys 1240 1245 1235 Trp Leu Asp Phe Leu Ile Val Asp Val Ser Leu Val Thr Leu Val Ala 1250 1255 1260 Asn Thr Leu Gly Tyr Ser Asp Leu Gly Pro Ile Lys Ser Leu Arg Thr 1270 1275 Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met 1285 1290 1295 Arg Val Val Val Asn Ala Leu Ile Gly Ala Ile Pro Ser Ile Met Asn 1305 1310

Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly 1320 1315 1325 Val Asn Leu Phe Ala Gly Lys Phe Tyr Glu Cys Ile Asn Thr Thr Asp 1330 1335 1340 Gly Ser Arg Phe Pro Ala Ser Gln Val Pro Asn Arg Ser Glu Cys Phe 1345 1350 1355 1360 Ala Leu Met Asn Val Ser Gln Asn Val Arg Trp Lys Asn Leu Lys Val 1365 1370 1375 Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu Ser Leu Leu Gln Val Ala 1385 1390 Thr Phe Lys Gly Trp Thr Ile Ile Met Tyr Ala Ala Val Asp Ser Val 1395 1400 1405 Asn Val Asp Lys Gln Pro Lys Tyr Glu Tyr Ser Leu Tyr Met Tyr Ile 1410 1415 1420 Tyr Phe Val Val Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu 1430 1435 1440 Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Leu 1445 1450 1455 Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn 1460 1465 1470 Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg 1475 1480 1485 Pro Gly Asn Lys Ile Gln Gly Cys Ile Phe Asp Leu Val Thr Asn Gln 1490 1495 1500 Ala Phe Asp Ile Ser Ile Met Val Leu Ile Cys Leu Asn Met Val Thr 1510 1515 Met Met Val Glu Lys Glu Gly Gln Ser Gln His Met Thr Glu Val Leu 1525 1530 Tyr Trp Ile Asn Val Val Phe Ile Ile Leu Phe Thr Gly Glu Cys Val 1540 1545 1550 Leu Lys Leu Ile Ser Leu Arg His Tyr Tyr Phe Thr Val Gly Trp Asn 1555 1560 1565 Ile Phe Asp Phe Val Val Val Ile Ile Ser Ile Val Gly Met Phe Leu 1575 1580 Ala Asp Leu Ile Glu Thr Tyr Phe Val Ser Pro Thr Leu Phe Arg Val 1590 1595 1600 Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala 1610 1605 Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala 1620 1625 1630 Leu Phe Asn Ile Gly Leu Leu Phe Leu Val Met Phe Ile Tyr Ala 1635 1640 1645 Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile 1650 1655 1660 Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu 1665 1670 1675 1686 Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile 1685 1690 Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly 1700 1705 1710 Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr 1715 1720 1725 Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr 1735 1740 Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr 1750 1755 1760 Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu 1770 1775 1765 Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser 1780 1785

Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn 1800 1805 1795 Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg 1815 1820 Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly 1830 1835 1840 Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe 1845 1850 Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr 1860 1865 1870 Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala 1875 1880 1885 Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile 1890 1895 1900 Tyr Ile Lys Asp Gly Asp Arg Asp Asp Asp Leu Leu Asn Lys Lys Asp 1905 1910 1915 192 1910 Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp 1925 1930 1935 Ala Thr Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys 1940 1945 1950 Pro Asp Lys Glu Lys Tyr Glu Gln Asp Arg Thr Glu Lys Glu Asp Lys 1955 1960 1965 Gly Lys Asp Ser Lys Glu Ser Lys Lys 1975 1970

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Ser	Val	Lys	Lys	Leu 245	Ser	Asp	Val	Met	Ile 250	Leu	Thr	Val	Phe	Cys 255	
Ser	Val	Phe	Ala 260	Leu	Ile	Gly	Leu	Gln 265	Leu	Phe	Met	Gly	Asn 270	Leu	Lys
His	Lys	Cys 275	Phe	Arg	Asn	Ser	Leu 280	Glu	Asn	Asn	Glu	Thr 285	Leu	Glu	Ser
Ile	Met 290	Asn	Thr	Leu	Glu	Ser 295	Glu	Glu	Asp	Phe	Arg 300	Lys	Tyr	Phe	Tyr
Tyr 305	Leu	Glu	Gly	Ser	Lys 310	Asp	Ala	Leu	Leu	Cys 315	Gly	Phe	Ser	Thr	Asp 320
Ser	Gly	Gln	Cys	Pro 325	Glu	Gly	Tyr	Thr	Cys 330	Val	Lys	Ile	Gly	Arg 335	Asn
Pro	Asp	Tyr	Gly 340	Tyr	Thr	Ser	Phe	Asp 345	Thr	Phe	Ser	Trp	Ala 350	Phe	Leu
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				405					410					Glu 415	
			420					425					430	Lys	
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	450					455					460			Ser	
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                                                    30
Lys Glu Pro Lys Glu Glu Lys Lys Asp Asp Glu Glu Ala Pro Lys
                           40
                                                45
Pro Ser Ser Asp Leu Glu Ala Gly Lys Gln Leu Pro Phe Ile Tyr Gly
                        55
                                            60
Asp Ile Pro Pro Gly Met Val Ser Glu Pro Leu Glu Asp Leu Asp Pro
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                                        75
Tyr Tyr Ala Asp Lys Lys Thr Phe Ile Val Leu Asn Lys Gly Lys Thr
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                                    90
Ile Phe Arg Phe Asn Ala Thr Pro Ala Leu Tyr Met Leu Ser Pro Phe
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                                105
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Ser Pro Leu Arg Arg Ile Ser Ile Lys Ile Leu Val His Ser Leu Phe
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                           120
                                             125
 Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Ile Phe Met Thr
                       135
                                        140
 Met Asn Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr Phe Thr
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                            155
 Gly Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile Leu Ala Arg Gly Phe
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                                170
Cys Val Gly Glu Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp Leu Asp
            180
                             185
 Phe Val Val Ile Val Phe Ala Tyr Leu Thr Glu Phe Val Asn Leu Gly
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                                             205
Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu Lys Thr
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                                         220
Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu Ile Gln
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Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe Cys Leu
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                                  250
Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn Leu Lys
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                             265
His Lys Cys Phe Arg Asn Ser Leu Glu Asn Asn Glu Thr Leu Glu Ser
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Ile Met Asn Thr Leu Glu Ser Glu Glu Asp Phe Arg Lys Tyr Phe Tyr
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Tyr Leu Glu Gly Ser Lys Asp Ala Leu Leu Cys Gly Phe Ser Thr Asp
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Ser Gly Gln Cys Pro Glu Gly Tyr Thr Cys Val Lys Ile Gly Arg Asn
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                                                      335
Pro Asp Tyr Gly Tyr Thr Ser Phe Asp Thr Phe Ser Trp Ala Phe Leu
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Ala Leu Phe Arg Leu Met Thr Gln Asp Tyr Trp Glu Asn Leu Tyr Gln
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Gln Thr Leu Arg Ala Ala Gly Lys Thr Tyr Met Ile Phe Phe Val Val
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Val Ile Phe Leu Gly Ser Phe Tyr Leu Ile Asn Leu Ile Leu Ala Val
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Val Ala Met Ala Tyr Glu Glu Gln Asn Gln Ala Asn Ile Glu Glu Ala
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Lys Gln Lys Glu Leu Glu Phe Gln Gln Met Leu Asp Arg Leu Lys Lys
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Glu Gln Glu Glu Ala Glu Ala Ile Ala Ala Ala Ala Glu Tyr Thr
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Ser Ile Arg Arg Ser Arg Ile Met Gly Leu Ser Glu Ser Ser Ser Glu
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Thr Ser Lys Leu Ser Ser Lys Ser Ala Lys Glu Arg Arg Asn Arg Arg
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Lys Lys Lys Asn Gln Lys Lys Leu Ser Ser Gly Glu Glu Lys Gly Asp
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Ala Glu Lys Leu Ser Lys Ser Glu Ser Glu Asp Ser Ile Arg Arg Lys
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Ser Phe His Leu Gly Val Glu Gly His Arg Arg Ala His Glu Lys Arg
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Leu Ser Thr Pro Asn Gln Ser Pro Leu Ser Ile Arg Gly Ser Leu Phe
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Ser Ala Arg Arg Ser Ser Arg Thr Ser Leu Phe Ser Phe Lys Gly Arg
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Gly Arg Asp Ile Gly Ser Glu Thr Glu Phe Ala Asp Asp Glu His Ser
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Asn Leu Arg Gln Arg Ala Met Ser Arg Ala Ser Ile Leu Thr Asn Thr
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Val Glu Glu Leu Glu Glu Ser Arg Gln Lys Cys Pro Pro Trp Trp Tyr
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Arg Phe Ala His Lys Phe Leu Ile Trp Asn Cys Ser Pro Tyr Trp Ile
705 710 715 720
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Lys Phe Lys Lys Cys Ile Tyr Phe Ile Val Met Asp Pro Phe Val Asp
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Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe Met Ala Met
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Glu His His Pro Met Thr Glu Glu Phe Lys Asn Val Leu Ala Ile Gly
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Asn Leu Val Phe Thr Gly Ile Phe Ala Ala Glu Met Val Leu Lys Leu
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                                780
Ile Ala Met Asp Pro Tyr Glu Tyr Phe Gln Val Gly Trp Asn Ile Phe
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                              795
Asp Ser Leu Ile Val Thr Leu Ser Leu Val Glu Leu Phe Leu Ala Asp
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                                 810
Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe
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                              825
                                                 830
Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile Lys Ile Ile
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                        840
                                              845
Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile
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                                         860
Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Ser
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                                      875
Tyr Lys Glu Cys Val Cys Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg
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                                 890
Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val Phe Arg Val
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Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ala
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                                             925
Gly Gln Ala Met Cys Leu Ile Val Tyr Met Met Val Met Val Ile Gly
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                                         940
Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe
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                                      955
Ser Ser Asp Asn Leu Thr Ala Ile Glu Glu Asp Pro Asp Ala Asn Asn
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Leu Gln Ile Ala Val Thr Arg Ile Lys Lys Gly Ile Asn Tyr Val Lys
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Gln Thr Leu Arg Glu Phe Ile Leu Lys Ala Phe Ser Lys Lys Pro Lys
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Lys His Leu Met Glu Asp Ser Asp Gly Gln Ser Phe Ile His Asn Pro
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Leu Lys Leu Ile Ser Leu Arg His Tyr Tyr Phe Thr Val Gly Trp Asn 1555 1560 1565 Ile Phe Asp Phe Val Val Ile Ile Ser Ile Val Gly Met Phe Leu 1570 1575 1580 Ala Asp Leu Ile Glu Thr Tyr Phe Val Ser Pro Thr Leu Phe Arg Val 1585 1590 1595 Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala 1605 1610 1615 Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala 1625 1630 1620 Leu Phe Asn Ile Gly Leu Leu Phe Leu Val Met Phe Ile Tyr Ala 1635 1640 1645 Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile 1650 1655 1660 Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu 1670 1675 Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile 1685 1690 1695 Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly 1700 1705 1710 Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr 1715 1720 1725 Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr 1730 1735 1740 Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr 1745 1750 1755 Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu 1765 1770 Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser 1780 1785 1790 Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn 1795 1800 1805 Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg 1815 1820 Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly 1830 1835 1840 Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe 1850 1845 1855 Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr 1860 1865 1870 Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala 1875 1880 1885 Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile 1890 1895 1900 Tyr Ile Lys Asp Gly Asp Arg Asp Asp Leu Leu Asn Lys Lys Asp 1905 1910 1915 Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp 1930 1925 1935 Ala Thr Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys 1940 1945 1950 Pro Asp Lys Glu Lys Tyr Glu Gln Asp Arg Thr Glu Lys Glu Asp Lys 1955 1960 1965 Gly Lys Asp Ser Lys Glu Ser Lys Lys 1970 1975